

What is Claimed is:

1. A method for the automatic setting of injectors, each injector including a piezoelectric actuator, a straight-through valve, a lever element coupled to the straight-through valve and a setting element coupled to the piezoelectric actuator, by way of which a physical position of the piezoelectric actuator relative to the lever element is adjustable, the method comprising:

(a) positioning an injector in a predetermined physical position in a measurement and setting station by way of a handling apparatus;

(b) coupling the injector to a pressure generating device via a high-pressure connection;

(c) coupling the piezoelectric actuator to an electric signal generating device via an electrical connection device;

(d) adjusting the setting element by way of a screwing device, the adjusting of the setting element thereby moving the piezoelectric actuator in a direction of the lever element until the injector switches through at a specific setting of the setting element; and

(e) registering the values, that are current when the injector switches through, for the torque applied to the setting element, for the angular position of the setting element, for the exciter voltage applied to the injector, and for the pressure drop caused by the switching-through action.

2. The method as claimed in claim 1, wherein the injector is classified as correctly set when all the registered values agree with predefined parameters or if the injector coupled to the pressure generating device switches through at a specific predefined voltage level during an injector test procedure, in which the actuator has a predetermined voltage/time profile applied to it, and in which the injector is otherwise classified as incorrectly set.

3. The method as claimed in claim 2, wherein an incorrectly set injector is reset by the setting element being turned back into an initial position, then steps (d) and (e) being carried out again, and the injector being reclassified in accordance with claim 2 as correctly or as incorrectly set.

4. The method as claimed in claim 2, wherein the correctly set injector is uncoupled from the pressure generating device, the piezoelectric actuator of the correctly set injector is uncoupled from the electric signal generating device, and the correctly set injector is removed from the measurement and setting station by way of the handling apparatus.

5. The method as claimed in claim 1, wherein, before the adjustment of the setting element, the piezoelectric actuator has a predetermined voltage profile applied to it, has a predetermined sequence of voltage pulses applied to it and has a specific sequence of charging pulses applied to it.

6. The method as claimed in claim 1, wherein before the adjustment of the setting element, the pressure generating device is set in such a way that the injector is coupled to a high-pressure reservoir assuming a limited volume.

7. The method as claimed in claim 2, wherein the injector test procedure has a voltage level that increases over time in the form of a ramp.

8. The method as claimed in claim 1, wherein, adjusting of the setting element further includes registering the course of the torque applied to the setting element, the course of the angular position of the setting element, the course of the voltage applied to the piezoelectric actuator, and the course of the pressure applied to the injector.

9. The method as claimed in claim 1, wherein the injector is fixed in the predetermined position in the measurement and setting station by way of a gripping apparatus.

10. An apparatus for the automatic setting of injectors, each injector having a piezoelectric actuator, a straight-through valve, a lever element coupled to the straight-through valve and a setting element coupled to the piezoelectric actuator, by way of which a physical position of the piezoelectric actuator can be adjusted relative to the lever element, the apparatus comprising:

- a measurement and setting station;

- a handling apparatus being constructed in such a way that an injector can be brought into a predetermined physical position relative to the measurement and setting station;

- a high-pressure connection being formed in such a way that the injector brought into the predetermined physical position can be coupled to a pressure generating device;

- an electrical connecting device being formed in such a way that the actuator of the injector brought into the predetermined physical position can be coupled to a signal generating device;

a screwing device being formed in such a way that a setting element of the injector brought into the predetermined physical position can be adjusted automatically;

a torque measuring apparatus whereby torque acting on the setting element can be registered during an adjustment of the setting element;

an angle measuring apparatus whereby the angular position of the setting element can be registered; and

a pressure measuring apparatus whereby the pressure applied to the injector can be registered.

11. The apparatus as claimed in claim 10, further comprising a gripping apparatus being designed in such a way that the injector can be fixed in the predetermined physical position.

12. The apparatus as claimed in claim 11, wherein the gripping apparatus is constructed in such a way that the injector can be fixed in an upper subsection.

13. The apparatus as claimed in claim 12, further comprising a holding apparatus by way of which the injector can be fixed in a lower subsection.

14. The apparatus as claimed in claim 13, wherein the holding apparatus is in a form of a fork wrench.

15. The apparatus as claimed in claim 10, wherein the handling apparatus has at least one rotary station.

16. The method as claimed in claim 2, wherein, before the adjustment of the setting element, the piezoelectric actuator has a predetermined voltage profile applied to it, has a predetermined sequence of voltage pulses applied to it and has a specific sequence of charging pulses applied to it.

17. The method as claimed in claim 2, wherein before the adjustment of the setting element, the pressure generating device is set in such a way that the injector is coupled to a high-pressure reservoir assuming a limited volume.

18. The method as claimed in claim 3, wherein before the adjustment of the setting element, the pressure generating device is set in such a way that the injector is coupled to a high-pressure reservoir assuming a limited volume.

19. The method as claimed in claim 3, wherein the injector test procedure has a voltage level that increases over time in the form of a ramp.

20. The method as claimed in claim 4, wherein the injector test procedure has a voltage level that increases over time in the form of a ramp.

21. The method as claimed in claim 1, wherein, adjusting of the setting element further includes registering one of the course of the torque applied to the setting element, the course of the angular position of the setting element, the course of the voltage applied to the piezoelectric actuator, and the course of the pressure applied to the injector.